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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,223	09/08/2003	Bruce C. S. Chou	3722-0158P	1069
2292	7590	06/03/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TAMAI, KARL I	
			ART UNIT	PAPER NUMBER
			2834	
DATE MAILED: 06/03/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/656,223

Applicant(s)

CHOU ET AL.

Examiner

Tamai IE Karl

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 18-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of Group I (Claims 1-17) in the reply filed on 4/4/05 is acknowledged. The traversal is on the ground that there is no undue burden on the examiner is not persuasive. This is not found persuasive because the different classifications shown the groups are different inventions which shows there is additional search burdens on the examiner for each group.

The requirement is still deemed proper and is therefore made FINAL.

***Specification***

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1, 2, 6, 9, 10, 14, and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Abraham Lee et al. (A.Lee)(US 5969848). Lee teaches a vertical actuator having a membrane 30 with slits 66 being vertically driven by fixed combs 63 interdigital with moving combs, and supported by beam flexures parallel to the substrate. The fixed combs being insulated from the membrane 30. Lee teaches the stationary, moving and mirror membrane 30 made of silicon, polysilicon, or metal.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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8. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over A.Lee, in further view of Behin et al. (Behin)(US 6744173). A.Lee teaches every aspect of the invention except the floating structure and the fixed electrodes having a two conductive layers separated by a dielectric. Behin teaches the fixed electrodes and the floating member having two conductive layers 202, 204 separated by a dielectric 208, with the first conductive layer on the substrate 206. It would have been obvious to an person of ordinary skill in the art at the time of the invention to construct the actuator of A.Lee with the layered electrodes and floating structure to provide better control over the mover, such as the damping ratio and natural frequency of the system, as taught by Behin.

9. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over A.Lee, in further view of Mitamura (US 5908986). A.Lee teaches every aspect of the invention except the floating structure supported at four corners by pairs of beam perpendicular to each other. Mitamura teaches elastic support can have one or more bodies at each corner, including a stage movable supported by perpendicular springs on four corners. It would have been obvious to an person of ordinary skill in the art at the time of the invention to construct the actuator of A.Lee with the floating structure supported at four corners by pairs of beam perpendicular to each other because providing multiple perpendicular spring supports is know to provide sufficient support to a vibrating structure, as taught by Mitamura.

10. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over A.Lee, in further view of Costello et al. (Costello)(US 6838738). A.Lee teaches every aspect of the invention except the electrodes positioned around the floating structure. Costello teaches a MEMS vertical actuator (fig 1A) with electrodes around the floating membrane 110 to provide a simple actuator that maximized the vertical force. It would have been obvious to an person of ordinary skill in the art at the time of the invention to construct the actuator of A.Lee with a fixed electrodes around the floating structure to maximize the vertical force as taught by Costello.

11. Claims 7, 8, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over A.Lee, in further view of Seung Lee et al. (S.Lee)(US 6628041). A.Lee teaches every aspect of the invention except the mirror being dielectric or metal film. S.Lee teaches the MEMS mirrors are made of metal such as cu, al, or au. It would have been obvious to an person of ordinary skill in the art at the time of the invention to construct the actuator of A.Lee with a mirror of a metal film because S.Lee teaches the metal film is a preferred means to redirect light.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

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The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai  
PRIMARY PATENT EXAMINER  
May 31, 2005



KARL TAMAI  
PRIMARY EXAMINER